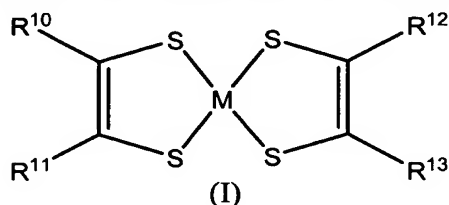


CLAIMS

1. A method of minimizing absorption of visible light in an ink composition comprising an IR-absorbing metal-dithiolene dye, comprising preselecting said dye such that it includes at least one moiety for reducing intermolecular interactions between adjacent dye molecules.
2. The method of claim 1, wherein the dye comprises a substantially planar π -system and the intermolecular interactions are π - π interactions.
3. The method of claim 1, wherein the intermolecular interactions are reduced by steric repulsion.
4. The method of claim 2, wherein the dye molecule comprises at least one moiety, which extends out of the plane of the substantially planar π -system.
5. The method of claim 1, wherein the intermolecular interactions are reduced using a bridged cyclic group.
6. The method of claim 1, wherein the intermolecular interactions are reduced using a polymeric group.
7. The method of claim 6, wherein the polymeric group is a dendrimer.
8. The method of claim 6, wherein the polymeric group includes a PEG chain.
9. The method of claim 1, wherein the dye is preselected from a metal-dithiolene of formula (I):



wherein:

M is selected from Ni, Pd or Pt;

R^{10} and R^{11} are independently selected from C_{1-30} hydrocarbyl, or R^{10} and R^{11} together are joined to form a C_{1-30} hydrocarbylene group;

R^{12} and R^{13} are independently selected from C_{1-30} hydrocarbyl, or R^{12} and R^{13} together are joined to form a C_{1-30} hydrocarbylene group;

wherein at least one of R^{10} , R^{11} , R^{12} or R^{13} comprises a moiety for reducing intermolecular interactions.

10. The method of claim 9, wherein the moiety suitable for reducing intermolecular interactions is a bridged cyclic group.

11. The method of claim 9, wherein R^{10} and R^{11} together are joined to form a bridged cyclic group.

12. The method of claim 9, wherein R^{12} and R^{13} together are joined to form a bridged cyclic group.

13. The method of claim 9, wherein the moiety for reducing intermolecular interactions is a polymeric group.

14. The method of claim 13, wherein the polymeric group is a dendrimer.

15. The method of claim 13, wherein the polymeric group includes a PEG chain.

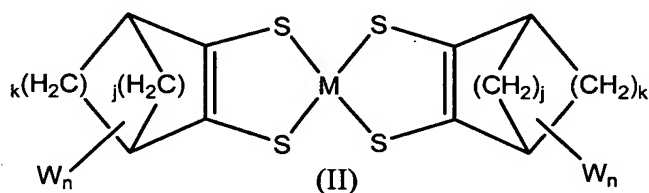
16. The method of claim 9, wherein at least one of R^{10} , R^{11} , R^{12} or R^{13} comprises a hydrophilic group.

17. The method of claim 9, wherein said hydrophilic group is selected from a PEG chain; an ammonium group; an acid group, including salts thereof; or a sulfonamide group.

18. The method of claim 17, wherein said hydrophilic group is a sulfonic acid group or a metal salt thereof.

19. The method of claim 9, wherein M is Ni.

20. The method of claim 9, wherein the dye is preselected from a metal-dithiolene of formula (II):



wherein:

M is selected from Ni, Pd or Pt (preferably Ni);

j is selected from 1, 2, 3 or 4;

k is selected from 1, 2, 3 or 4;

n is 0, 1, 2 or 3;

W is a hydrophilic group;

up to three $-(CH_2)-$ groups in the carbocycle are optionally replaced by a group independently selected from $-C(O)-$, $-NH-$, $-S-$, $-O-$;

up to three $-CH-$ groups in the carbocycle may be optionally replaced by $-N-$; and

up to four H atoms in the carbocycle may be optionally replaced a group independently selected from C_{1-6} alkyl, C_{1-6} alkoxy, C_{5-12} aryl, C_{5-12} arylalkyl, halogen, hydroxyl or amino.

21. The method of claim 20, wherein M is Ni.

22. The method of claim 20, wherein j is 1 and k is 2.

23. The method of claim 20, wherein said dye comprises a $-C(C_{1-4} \text{ alkyl})_2-$ bridging group.

24. The method of claim 20, wherein n is 1.

25. The method of claim 20, wherein W is selected from a substituent comprising a PEG chain; a substituent comprising an ammonium group; a substituent comprising an acid group, including salts thereof; or a substituent comprising a sulfonamide group.

26. The method of claim 20, wherein W is a substituent comprising a group of formula $-CO_2Z$, $-SO_3Z$, $-OSO_3Z$, $-PO_3Z$ or $-OPO_3Z$, wherein Z is H or a water-soluble cation.

27. The method of claim 26, wherein W is of formula $-(CH_2)_t-SO_3Z$, wherein t is 0 or an integer from 1 to 6, and Z is H or a water-soluble cation.

28. The method of claim 26, wherein W is of formula $-CH_2SO_3H$, $-CH_2SO_3Na$ or $-CH_2SO_3K$.

29. A method of minimizing absorption of visible light in an inkjet ink comprising an IR-absorbing metal-dithiolene dye, said method comprising preselecting said dye such that it includes a moiety for reducing intermolecular interactions between adjacent dye molecules.

30. The method of claim 29, wherein said inkjet ink further comprises a singlet oxygen quencher.

31. The method of claim 29, wherein said inkjet ink is contained in an ink reservoir in fluid communication with a printhead of an inkjet printer.

32. The method of claim 31, wherein said wherein said printhead comprises:
a plurality of nozzles;

a bubble forming chamber corresponding to each of the nozzles respectively, the bubble forming chambers adapted to contain ejectable liquid; and

a heater element disposed in each of the bubble forming chambers respectively, the heater element configured for thermal contact with the

5 ejectable liquid; such that,

heating the heater element to a temperature above the boiling point of the ejectable liquid forms a gas bubble that causes the ejection of a drop of the ejectable liquid from the nozzle; wherein,

the heater element is suspended in the ink chamber such that during use at least a portion of the heater element is encircled by, and in direct contact with, the ejectable fluid.

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33. The method of claim 29, wherein said inkjet ink is contained in an ink cartridge.

34. A method of minimizing visible coloration of a substrate having an IR-absorbing metal-dithiolene dye disposed thereon, said method comprising preselecting said dye such that it includes a moiety for reducing
15 intermolecular interactions between adjacent dye molecules.

35. The method of claim 34, wherein said dye is disposed in the form of coded data.

36. The method of claim 34, wherein said substrate comprises an interface surface and wherein the coded data is disposed over a substantial portion of said interface surface.
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37. The method claim 34, wherein said substrate is a paper sheet, a label, a tag, a packaging material or a product item.

25 38. A method of enabling entry of data into a computer system via a printed form, the form containing human-readable information and machine-readable coded data, the coded data being indicative of an identity of the form and of a plurality of reference points of the form, the method including the steps of:
receiving, in the computer system and from a sensing device, indicating data regarding the identity of the form and a position of the sensing device relative to the form, the sensing device, when placed in an operative
30 position relative to the form, generating the indicating data using at least some of the coded data;
identifying, in the computer system and from the indicating data, at least one field of the form; and
interpreting, in the computer system, at least some of the indicating data as it relates to the at least one field,
wherein said coded data comprises an ink composition in which visible absorption is minimized by a method
35 according to claim 1.

39. The method of claim 38 in which the at least one field is associated with at least one zone of the form, the identifying step including identifying that the position of the sensing device is within the at least one zone.

40. The method of claim 39 in which the indicating data includes movement data regarding movement of the sensing device relative to the form, the sensing device generating the movement data using at least some of the coded data, the identifying step including identifying that the movement of the sensing device is at least partially within the at least one zone.

41. A method of enabling entry of data into a computer system via a printed form, the form containing human-readable information and machine-readable coded data, the coded data being indicative of at least one field of the form, the method including the steps of:

receiving, in the computer system and from a sensing device, indicating data regarding the at least one field and including movement data regarding movement of the sensing device relative to the form, the sensing device, when moved relative to the form, generating the data regarding said at least one field using at least some of the coded data and generating the data regarding its own movement relative to the form; and

interpreting, in the computer system, at least some of said indicating data as it relates to said at least one field,

wherein said coded data comprises an ink composition in which visible absorption is minimized by a method according to claim 1.

42. The method of claim 41 in which the sensing device generates the movement data using at least some of the coded data.

43. The method any one of claims 39, 40 and 41 in which the at least one field is a text field and the interpreting step includes converting at least some of the movement data to text.

44. The method any one of claims 39, 40 and 41 in which the at least one field is a drawing field.

45. The method any one of claims 39, 40 and 41 in which the at least one field is a checkbox field and the interpreting step includes interpreting at least some of the movement data as a check mark.

46. The method any one of claims 39, 40 and 41 in which the at least one field is a signature field and the interpreting step includes verifying that at least some of the movement data represents a signature of a user associated with the sensing device.

47. The method of claim 38 or claim 41 in which the at least one field is an action field and the interpreting step includes sending a message to an application associated with the action field.

48. The method of claim 47 in which the action field is a form submission action field and the message includes form data derived from at least one other field of the form.

5 49. A method of enabling entry of data into a computer system via a product item, the product item having a printed surface containing human-readable information and machine-readable coded data, the coded data being indicative of an identity of the product item, the method including the steps of:

- (a) receiving, in the computer system and from a sensing device, indicating data regarding the identity of the product item, the sensing device, when placed in an operative position relative to the product item, generating the
10 indicating data using at least some of the coded data; and
- (b) recording, in the computer system and using the indicating data, information relating to the product item, wherein said coded data comprises an ink composition in which visible absorption is minimized by a method according to claim 1.

15 50. A method of enabling retrieval of data from a computer system via a product item, the product item having a printed surface containing human-readable information and machine-readable coded data, the coded data being indicative of an identity of the product item, the method including the steps of:

- (a) receiving, in the computer system and from a sensing device, indicating data regarding the identity of the product item, the sensing device, when placed in an operative position relative to the product item, generating the
20 indicating data using at least some of the coded data;
- (b) retrieving, in the computer system and using the indicating data, information relating to the product item; and
- (c) outputting, from the computer system and to an output device, the information relating to the product item, the output device selected from the group comprising a display device and a printing device,
25 wherein said coded data comprises an ink composition in which visible absorption is minimized by a method according to claim 1.

51. The method of claim 49 or 50 in which the coded data is formed from a plurality of coded data portions, each coded data portion being indicative of the identity of the product item.

30 52. The method of claim 49 or 50 in which the coded data is indicative of at least one of a UPC and an EPC associated with the product item.

53. The method of claim 38 or 41 in which the form is disposed on a surface of a product item and in which
35 the coded data is indicative of an identity of the product item.

54. The method of claim 53 in which the coded data is formed from a plurality of coded data portions, each coded data portion being indicative of the identity of the product item.
55. The method of claim 53 in which the coded data is indicative of at least one of a UPC and an EPC associated with the product item.
56. The method of any one of claims 38, 41, 49 or 50 in which the coded data is substantially invisible to an unaided human eye.